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REMARKS

In response to the Office Action of November 28, 2003, the status of the claims is as follows:

Claims 77, 89, 91-92, 97, 108, 139; 140, 141, and 147 are amended herein; claims 78-88, 90, 93-96, 98-107, 109-138, and 142-146 are unamended; claims 148-156 are added; and no claims are canceled.

Applicants will respond, substantially in the order presented, to the points raised in the Office Action, wherein claims 77-147 were rejected.

Rejection of Claim 97 Under 35 U.S.C. §112, second paragraph

Claim 97 has been rejected as indefinite due to its reference to alpha particles. In response to this rejection, Applicants request entry of an amendment to claim 97, as above, to delete reference to "alpha particles" and to suitably adjust the grammar of the claim.

Rejection of Anticipation by, and Obviousness over, Smith '988

In item 3 on page 3 of the Office Action, all of the pending claims are rejected over Smith '988, either as anticipated by the reference or as obvious over the reference. In response, Applicants request entry of the above amendments to claims 77, 139-141 and 147. Specifically, the Examiner has noted that "in order to exclude Smith, Jr. et al., the claim would appear to need to be a bit more specific as to the 'locally exposing', and to how or what about the coalescence is being controlled." The proposed amendments, indeed, provide more detail concerning the control of the coalescence by way of local exposure to electromagnetic radiation, as requested by the Examiner.

Amended claim 77 now includes the following features not disclosed in or made obvious by the Smith '988 patent or any of the other cited prior art:

1. "said droplets being deposited so as to enable coalescence of one such droplet with at least one other such droplet on said surface, and thus to form said masking pattern..."
2. electromagnetic radiation being selected "...in such a way as to change a fluid property of said deposition material so as to control said coalescence..."
3. control of the solidity of a masking pattern.

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By contrast, Smith provides no disclosure at all suggesting or even hinting at the control of the solidity of a pattern, particularly a masking pattern. Consequently, amended claim 77 is novel over Smith.

Control of pattern solidity is particularly important in producing, for instance, a masking pattern to be used in production of electronic circuits or components. The presence of any unwanted gaps or defects in a masking pattern (however small) can have deleterious effects on the operation of the manufactured electronic circuits or components produced using such masking pattern. The present invention obtains such control of solidity of a masking pattern by controlling the coalescence of the droplets, one with another.

By contrast, Smith, in addition to providing no disclosure relating to control of the solidity of a pattern, provides no disclosure relating to the coalescence of droplets of material, one with another, once they have been deposited on a surface. That is, Smith provides no disclosure whatsoever relating to control of such coalescence. Rather, Smith is solely concerned with the formation of droplets of material and their guidance to a particular location. It is not concerned with the behavior of such droplets once they have been deposited on a surface.

Consequently, it will be clear that Smith does not suggest or make obvious the subject matter of any of the claims.

Turning to claim 139, as amended, one will now find that it includes the following features not disclosed in or suggested by Smith '988 or any of the other references of record:

1. "... said droplets being deposited so as to enable coalescence of one such droplet with at least one other such droplet on said surface, and thus to form said spacer pattern..."
2. electromagnetic radiation being selected "... in such a way as to change a fluid property of said deposition material so as to control said coalescence..."
3. control of the solidity of a spacer pattern.

Similarly, claim 140, as amended, now includes the following features which are not disclosed in or suggested by Smith '988 or any of the other references of record:

1. "... said droplets being deposited so as to enable coalescence of one such droplet with at least one other such droplet, and thus to fill said via holes..."
2. electromagnetic radiation "generated in such as to change a fluid property of said deposition material so as to control said coalescence..."
3. control the filling of the via holes.

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Likewise, claim 141, as amended, is similarly patentably distinguishable from Smith '988 except that the coalescence occurs "on said charge portions of said roller" to "control the structure of the pattern formed on the roller."

Finally, claim 147, as amended, includes the following feature not disclosed or suggested in Smith '988:

1. "said means for generating electromagnetic radiation is adapted to generate said electromagnetic radiation in such a way as to change a fluid property of said deposition material..."

2. "to control coalescence of the droplets on the surface."

Support for the foregoing amendments can be found, *inter alia*, at page 5, lines 10-19 and page 19, lines 30-32.

Consequently, with the foregoing amendments, all of claims 77-147 become allowable over Smith '988.

Rejection of Claims 97-104 and 143 as Obvious over Smith in View of Adler or Hallman

In item 4 on page 4 of the Office Action, claims 97-104 and 143 also were rejected under 35 U.S.C. §103(a) as unpatentable over Smith, applied as above, in view of Adler or Hallman, as applied in section No. 5 of Paper No. 7 (the Office Action mistakenly says "17").

The above-discussed amendments to the independent claims moot this rejection. Neither Adler nor Hallman supplies the teaching of claim limitations absent in Smith. So the combination, even if proper, does not teach the claimed invention. Indeed, in Paper No. 7, section 5, the Examiner applied Adler for a disclosure of "use of UV for curing an analogously deposited polymeric material," asserting it "would have been an obvious modification to suggested (sic.) polymeric depositions in Smith et al." Further, the Office Action also states that Adler "illustrates use of flexible substrates and roller supports provided for the deposition process." Hallman is cited for "analogous teaching, to provide analogous obviousness for use of UV and its sources..., with further teaching of epoxy, which corresponds to polymers employed by Smith." Thus, neither Adler nor Hallman was applied as teaching any of the above-discussed distinguishing limitations of Applicants' claims not found in Smith, and from Applicants' review of those references, they do not, in fact, supply such missing limitations or suggest them.

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Accordingly, by the above-discussed amendments, Applicants have rendered moot this rejection and it should be withdrawn.

References Cited but not Applied

In item 5 of the Office Action, the Examiner has discussed certain references which have not been applied, Feld et al. and Nishikawa et al. For the record, the polymerization described in relation to embodiment 2 in Nishikawa et al., noted by the Examiner, is not coalescence as recited in the amended claim set. The coalescence recited in the amended set of claims is coalescence of one droplet with another droplet, not merely polymerization of materials as described in Nishikawa et al. Further, the exposure of the deposition material to electromagnetic radiation as recited in claim 77 can occur prior to and/or after deposition of the droplets of deposition material on the surface. See, for instance, page 5, lines 3-4 of the specification.

New Claims

Additional dependent claims 148-153 and a new independent claim 154 with its dependent claims 155 and 156, are proposed to be added to claim invention details not previously claimed. The following chart identifies at least some of the locations in the specification supporting these new claims.

| CLAIM | SUPPORT |
|-------|--|
| 148 | page 5, lines 10 to 12; page 16, line 28 to page 17, line 4; page 23, line 4 |
| 149 | page 5, lines 3 to 4; page 21, lines 27 to 31 |
| 150 | page 18, lines 30 to 32; page 20, lines 25 to 27 |
| 151 | page 12, lines 22 to 23; page 35, lines 20 to 21 |
| 152 | page 20, lines 10 to 11 |
| 153 | page 20, lines 10 to 11 |
| 154 | claim 140, page 32, lines 17 to 22 |
| 155 | page 20, lines 10 to 11 |
| 156 | claim 101 |

Entry of these Amendments is Proper

Noting the finality of the Office Action, Applicants observe that entry of this amendment is proper pursuant to 37 C.F.R. §1.116. The amendments to the claims follow, in fact, the explicit suggestion of the Examiner in the Office Action. This suggestion could not have been anticipated.

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New claims 148-153 all depend directly or indirectly, from independent claims discussed above and which are allowable for the reasons presented herein.

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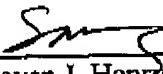
CONCLUSION

For the foregoing reasons, it will now be seen that all claims are in condition for allowance. Therefore, issuance of a Notice of Allowance is requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

Applicant hereby requests the necessary extension of time. Please charge the fee of \$420.00 to Deposit Account No. 23/2825. Please charge any deficiencies to Deposit Account No. 23/2825.

Respectfully submitted,
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Docket No. M0274.70029US00

Date: April 28, 2004

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